We claim:

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1. A cyclic aldehyde derivative of the formulae

in which the symbols X, Y, Z and R¹ to R¹³ have the following meanings:

 R^1 is hydrogen or a linear or branched, substituted or unsubstituted C_3 - C_{29} -alkyl group or a linear or branched, substituted or unsubstituted C_3 - C_{29} -alkenyl group, where one or more carbon atoms in the alkyl or alkenyl chain may be replaced by -O-, -NR¹⁴, -C(O)NR¹⁵- or -S- and -O-O- and -S-S- are excluded; R^2 is hydrogen or -CH₃;

R³, R⁴, R⁵ and R⁶ are, independently of one another, chosen from the group of substituents consisting of: H; -CN; -C(O)OH; -C(O)OR¹⁸; -C(O)NR¹⁹R²⁰; C₆H₅, in which one or more hydrogens may be replaced by substituents;

$$\bigcirc 0 = 0$$

and C₁-C₅-alkyl groups which, at any desired point in the chain, may have 1 to 4 substituents from the group -OH; -SH; -CN; NR¹⁶R¹⁷; -OR²²; or 1 to 2 substituents from the group consisting of -C(O)OH; -C(O)OR¹⁸; -C(O)NR¹⁹R²⁰; -OSO₃⁻; -SO₃⁻; -OPO₃²⁻; OPO(OR²¹)₂; C₆H₅, in which one or more hydrogens may be replaced by substituents; and

$$\bigcirc$$
 = 0

or

one of the substituent pairs R^3 , R^4 and R^5 , R^6 is =O;

 R^7 , R^8 , R^9 and R^{10} are, independently of one another, chosen from the group of substituents consisting of: H; -CN; -NR¹⁶R¹⁷; -C(O)OH; -C(O)OR¹⁸; -C(O)NR¹⁹R²⁰; -OSO₃⁻; -OPO₃²⁻; OPO(OR²¹)₂; C₆H₅, in which one or more hydrogens may be replaced by substituents;

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0 = 0

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and C_1 - C_5 -alkyl groups which, at any desired point on the chain, may have 1 to 4 substituents from the group -OH; -SH; -CN; $NR^{16}R^{17}$; -OR²²; or 1 to 2 substituents from the group consisting of -C(O)OH; -C(O)OR¹⁸; -C(O)NR¹⁹R²⁰; -OSO₃⁻; -SO₃⁻; -OPO₃²⁻; OPO(OR²¹)₂; C_6H_5 , in which one or more hydrogens may be replaced by substituents; and

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R¹¹ has, independently, the same meaning as R¹;

R¹² has, independently, the same meaning as R²;

R¹³ has, independently, the same meaning as R³, R⁴, R⁵ or R⁶;

R¹⁴ is a linear or branched C₁-C₄-alkyl group;

R¹⁵ is hydrogen or a linear or branched C₁-C₄-alkyl group;

 R^{16} , R^{17} are, independently of one another, hydrogen or a linear or branched C_1 - C_4 -alkyl group;

 R^{18} is chosen from the group consisting of C_1 - C_6 -alkyl groups and ethyleneoxy groups - $(CH_2$ - CH_2 O- $)_p$;

 R^{19} , R^{20} have, independently, the same meaning as R^{16} , R^{17} ;

 R^{21} is a C_1 - C_4 -alkyl group or - C_6H_5 ;

 R^{22} is chosen from the group consisting of C_1 - C_{10} -alkyl groups, acyl groups $-C(O)R^{23}$ and the group consisting of ethyleneoxy groups $-(CH_2-CH_2O)_q$, propyleneoxy groups $-(CH(CH_3)-CH_2O)_r$, butyleneoxy groups $-(C_4H_9O)_s$, and alkyleneoxy groups containing at least two of the abovementioned groups in the

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form of block or random copolymers and containing a total of at most 15 alkyleneoxy units;

 R^{23} is a C_1 - C_{18} -alkyl group;

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X and Y in formula I and II are, independently of one another, O, S, or NR²⁴, Z in formula II is N;

R²⁴ is hydrogen or a C₁-C₄-alkyl group;

l, m and n are, independently of one another, 0 or 1;

p is an integer from 1 to 15;

q is an integer from 1 to 15;

r is an integer from 1 to 15;

s is an integer from 1 to 15;

and where the aliphatic moiety of the compounds of the formula I or II which does not originate from the feed aldehyde, in cases where X, Y are =0 and R^3 , R^4 or R^5 , R^6 are =0, must have at least 2 carbon atoms, and in all other cases must have at least 3 carbon atoms.

2. A compound as claimed in claim 1 in which one, two or more or all of the symbols X, Y and Z, one, two or more or all of the substituents R¹ to R¹³, and one or more of the symbols l, m and n have the following meanings:

 R^1 is a linear or branched C_5 - C_{17} -alkyl group or a linear or branched C_3 - C_{17} -alkenyl group, where one or more carbon atoms in the alkyl chain may be replaced by O or NR^{14} and -O-O- is excluded;

 R^2 is -H;

R³, R⁴, R⁵ and R⁶ are, independently of one another, chosen from the group consisting of: -H; -C(O)OH; -C(O)OR¹⁸;

$$\bigcirc$$
 = 0

and C_1 - C_5 -alkyl groups which, at any desired position on the chain, may have 1 or 2 substituents from the group -OH; -CN; $NR^{16}R^{17}$; -OR²²; or 1 substituent from the group consisting of -C(O)OH; -C₆H₅, in which one or more hydrogens may be replaced by substituents; and

$$\bigcup_{0}^{0} = 0$$

or

one of the substituent pairs R^3 , R^4 and R^5 , R^6 is =0;

R⁷, R⁸, R⁹ and R¹⁰ are, independently of one another, chosen from the group consisting of: -H; -NR¹⁶R¹⁷; -C(O)OH; -C(O)OR¹⁸;

$$\bigcup_{0} = 0$$

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and C_1 - C_5 -alkyl groups which, at any desired position on the chain, may have 1 or 2 substituents from the group -OH; -CN; $NR^{16}R^{17}$; -OR²²; or 1 substituent from the group consisting of -C(O)OH; -C₆H₅, in which one or more hydrogens may be replaced by substituents; and

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$$\bigcirc 0 = 0$$

R¹¹ has, independently, the same meaning as R¹;

R¹² has, independently, the same meaning as R²;

R¹³ has, independently, the same meaning as R³, R⁴, R⁵ or R⁶;

 R^{14} is a linear or branched C_1 - C_4 -alkyl group;

 R^{16} , R^{17} are, independently of one another, hydrogen or a linear or branched C_1 - C_4 -alkyl group;

 R^{18} is chosen from the group consisting of C_1 - C_6 -alkyl groups and ethyleneoxy groups - $(CH_2-CH_2O_{-})_p$;

 R^{22} is chosen from the group consisting of C_1 - C_4 -alkyl groups, acyl groups $-C(O)R^{23}$ and the group consisting of ethyleneoxy groups $-(CH_2-CH_2O_-)_q$, propyleneoxy groups $-(CH(CH_3)-CH_2O_-)_r$ and butyleneoxy groups $-(C_4H_9O_-)_s$, and mixed alkyleneoxy groups;

R²³ is a C₁-C₁₈-alkyl group;

X and Y in the formula I and II are, independently of one another, O or NR²⁴, Z in formula II is N;

R²⁴ is hydrogen or a C₁-C₄-alkyl group;

l, m and n are, independently of one another, 0 or 1;

p is an integer from 1 to 15;

q is an integer from 1 to 10;

r is an integer from 1 to 10;

s is an integer from 1 to 10;

and where the aliphatic moiety of the compounds of the formula I or II which does not originate from the feed aldehyde, in cases where X, Y are =0 and R^3 , R^4 or R^5 , R^6 are =0, must have at least 2 carbon atoms, and in all other cases must have at least 3 carbon atoms.

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3. A compound as claimed in claim 1 or 2, in which one, two or more or all of the symbols X, Y, Z and l, m, and n and also one, two or more or all of the substituents R¹ to R¹³ have the following meanings:

 R^1 is a linear or branched C_5 - C_{17} -alkyl group or a linear or branched C_5 - C_{17} -alkenyl group;

 R^2 is -H;

 R^3 , R^4 , R^5 and R^6 are, independently of one another, chosen from the group consisting of: -H; -C(O)OH; and C₁-C₃-alkyl groups which can have, at any desired point on the chain, 1 or 2 substituents from the group -OH; -NR¹⁶R¹⁷; -OR²²; or 1 substituent from the group consisting of -C(O)OH; and

$$\bigcup_{0} = 0$$

or

one of the substituent pairs R^3 , R^4 and R^5 , R^6 is =0;

R⁷, R⁸, R⁹ and R¹⁰ are, independently of one another, chosen from the group consisting of: -H; -NR¹⁶R¹⁷; -C(O)OH; and C₁-C₃-alkyl groups which, at any desired point on the chain, can have 1 or 2 substituents from the group -OH; NR¹⁶R¹⁷: or 1 substituent from the group consisting of -C(O)OH; and

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$$\bigcirc 0 = 0$$

R¹¹ has, independently, the same meaning as R¹;

R¹² has, independently, the same meaning as R²;

 R^{13} has, independently, the same meaning as R^3 , R^4 , R^5 or R^6 ;

 R^{16} , R^{17} are, independently of one another, hydrogen or a linear or branched C_1 - C_4 -alkyl group;

 R^{22} is chosen from the group consisting of C_1 - C_4 -alkyl groups, acyl groups $-C(O)R^{23}$ and the group consisting of ethyleneoxy groups $-(CH_2-CH_2O)_q$, propyleneoxy groups $-(CH(CH_3)-CH_2O)_r$ and butyleneoxy groups $-(CH_2-CH_2C)_r$, and mixed alkyleneoxy groups;

 R^{23} is a C_1 - C_{18} -alkyl group;

X and Y in formula I and II are, independently of one another, O or NR²⁴, Z in formula II is N;

R²⁴ is hydrogen or a C₁-C₄-alkyl group;

l, m and n are, independently of one another, 0 or 1;

q is an integer from 1 to 10;

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r is an integer from 1 to 10;

s is an integer from 1 to 10;

and where the aliphatic moiety of the compounds of the formula I or II which does not originate from the feed aldehyde in cases where X, Y are =0 and R^3 , R^4 or R^5 , R^6 are =0 must have at least 2 carbon atoms, and in all other cases must have at least 3 carbon atoms.

4. A compound as claimed in any of claims 1 to 3, in which one, two or more or all of the symbols X, Y, Z and l, m, and n and also one, two or more or all of the substituents R¹ to R¹³ have the following meanings:

 R^1 is a linear or branched C_3 - C_{21} -alkyl group or a linear or branched C_3 - C_{21} -alkenyl group;

 R^2 is -H;

R³, R⁴, R⁵ and R⁶ are, independently of one another, chosen from the group consisting of: -H; -C(O)OH; and C₁-C₃-alkyl groups which may have, at any desired point on the chain, 1 or 2 substituents from the group -OH; -NR¹⁶R¹⁷; -OR²²; or 1 substituent of the type -C(O)OH; or

one of the substituent pairs R^3 , R^4 and R^5 , R^6 is =0;

 R^7 , R^8 , R^9 and R^{10} are, independently of one another, chosen from the group consisting of: -H; -NR¹⁶R¹⁷; -C(O)OH; and C₁-C₃-alkyl groups which may have, at any desired point on the chain, 1 or 2 substituents on the group -OH; NR¹⁶R¹⁷; or 1 substituent of the type -C(O)OH;

R¹¹ has, independently, the same meaning as R¹;

 R^{12} has, independently, the same meaning as R^2 ;

R¹³ has, independently, the same meaning as R³, R⁴, R⁵ or R⁶;

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mixtures of (9) and (10);

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R<sup>16</sup>, R<sup>17</sup> are, independently of one another, hydrogen or a linear or branched C<sub>1</sub>-C<sub>4</sub>-
alkyl group;
R<sup>22</sup> is chosen from the group consisting of C<sub>1</sub>-C<sub>4</sub>-alkyl groups and ethyleneoxy
groups -(CH2-CH2O-)a;
X and Y in formula I and II are, independently of one another, O, S, or NR<sup>24</sup>, Z in
formula II is N:
R^{24} is hydrogen or a C_1-C_4-alkyl group;
l, m and n are, independently of one another, 0 or 1;
q is an integer from 3 to 8;
and where the aliphatic moiety of the compounds of the formula I or II which does
not originate from the feed aldehyde in cases where X, Y are =O and R<sup>3</sup>, R<sup>4</sup> or R<sup>5</sup>,
R<sup>6</sup> are =0 must have at least 2 carbon atoms, and in all other cases must have have
at least 3 carbon atoms.
As compound as claimed in claim 1:
2-(1-ethylpentyl)-[1,3]-dioxolan-4-one (1);
3,5-bis(1-ethylpentyl)-7a-hydroxymethyldihydrooxazolo[3,4-c]oxazole (2);
7a-hydroxymethyl-3,5-di(nonyl)dihydrooxazolo[3,4-c]oxazole (3);
2-(1-ethylpentyl)4,4-di(hydroxymethyl)oxazolidine (4);
4,4-di(hydroxymethyl)-2-nonyloxazolidine (5);
2-(1-propylhexyl)4,4-di(hydroxymethyl)oxazolidine (6);
7a-hydroxymethyl-3,5-di(dodecyl)dihydrooxazolo[3,4-c]oxazole (7);
7a-hydroxymethyl-3,5-di(tetradecyl)dihydrooxazolo[3,4-c]oxazole (8);
7a-hydroxymethyl-3,5-di(undecyl)dihydrooxazolo[3,4-c]oxazole (9);
7a-hydroxymethyl-3,5-di(tridecyl)dihydrooxazolo[3,4-c]oxazole (10);
4,4-di(hydroxymethyl)-2-dodecyloxazolidine (11);
4,4-di(hydroxymethyl)-2-tetradecyloxazolidine (12);
4,4-di(hydroxymethyl)-2-undecyloxazolidine (13);
4,4-di(hydroxymethyl)-2-tridecyloxazolidine (14);
2-(1-propylhexyl)-[1,3]-dioxolan-4-one (15)
2-(1-propylhexenyl)-[1,3]-dioxolan-4-one (16)
7a-hydroxymethyl-3,5-di(1-propylhexenyl)dihydrooxazolo[3,4-c]oxazole (17)
4,4-di(hydroxymethyl)-2-(1-propylhexenyl)oxazolidine (18)
mixtures of (7) and (8);
mixtures of (11) and (12)
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mixtures of (13) and (14); adducts of one of the substances (1) to (18) having 3 to 10 ethylene oxide units and mixtures thereof.

- A compound as claimed in any of claims 1 to 5, wherein the substituent R¹ has an average degree of branching from 0 to 2.5, preferably 0.2 to 1.6.
- 7. A process for the preparation of a compound as claimed in any of claims 1 to 6, which comprises, in a condensation reaction known per se, reacting the respective aldehyde or an aldehyde mixture and the polyfunctional compound to be reacted therewith and comprising at least two identical or different functional groups chosen from hydroxyl, diol, carboxyl and primary and secondary amino functions or a mixture of polyfunctional compounds, together, optionally in the presence of a suitable acid.
 - 8. A process as claimed in claim 7, wherein Lewis or Brönsted acids known per se are used in liquid or solid form, preferably sulfuric acid, p-toluenesulfonic acid, p-toluenesulfonic acid pyridinium salt or acidic ion exchangers.
- 9. A process as claimed in claim 7 or 8, wherein the aldehyde used is a linear or branched aliphatic C₄-C₃₀-aldehyde, preferably a C₆-C₁₈-aldehyde, having an average degree of branching of from 0 to 2.5, preferably 0.2 to 1.6.
- is a compound chosen from the following groups:

 linear and branched aliphatic C₃-C₆-polyols with at least two hydroxyl functions, preferably 2 to 5 hydroxyl functions, in particular 2 to 4 hydroxyl functions, in which, in addition to the hydroxyl functions, further functional groups may be present which are chosen from the group -SH; -CN; NR¹⁶R¹⁷; -C(O)OH; -C(O)OR¹⁸; -C(O)NR¹⁹R²⁰; -OSO₃⁻; -SO₃⁻; -OPO₃²⁻; OPO(OR²¹)₂; -OR²²; C₆H₅, in which one or more hydrogens may be replaced by substituents; and

$$\downarrow 0$$
 = 0

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linear and branched aliphatic C₃-C₆-alkanolamines with at least one primary or secondary amino function and a hydroxyl function, in which a maximum of 4 further hydroxyl or amino functions may be present, preferably exactly one amino

function, and further substituents may be present from the group: -SH; -CN; -C(O)OH;, -C(O)OR¹⁸; -C(O)NR¹⁹R²⁰; -OSO₃⁻; -SO₃⁻; -OPO₃²⁻; OPO(OR²¹)₂; -OR²²; -C₆H₅, in which one or more hydrogens may be replaced by substituents; and

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0 = 0

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linear and branched aliphatic C₃-C₆-thiols with one thiol function and one hydroxyl function, in which four further hydroxyl or thiol functions may be present, preferably the thiol has exactly one SH function and further substituents may be present from the group: -OH; -SH; -CN; NR¹⁶R¹⁷; -C(O)OH; -C(O)OR¹⁸; -C(O)NR¹⁹⁵R²⁰; -OSO₃; -SO₃; -OPO₃²; OPO(OR²¹)₂; -OR²²; -C₆H₅, in which one or more hydrogens may be replaced by substituents; and

$$\bigcirc 0 = 0$$

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linear and branched aliphatic C_3 - C_6 -hydroxycarboxylic acids with one hydroxyl function and one carboxyl function in which four further hydroxyl or carboxyl functions may be present, preferably the molecule has exactly one carboxyl function and further substituents may be present from the group: -SH; -CN; $NR^{16}R^{17}$; -C(O)OR¹⁸; -C(O)NR¹⁹R²⁰; -OSO₃⁻; -SO₃⁻; -OPO₃²⁻; OPO(OR²¹)₂; -OR²²; -C₆H₅, in which one or more hydrogens may be replaced by substituents; and

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linear and branched aliphatic C_3 - C_6 -diamines with 2 to 6 primary or secondary amino functions, preferably 2 to 4 primary or secondary amino functions, and further substituents may be present from the group: -OH; -SH; -CN; -C(O)OH; -C(O)OR¹⁸; -C(O)NR¹⁹R²⁰; -OSO₃⁻; -SO₃⁻; -OPO₃²⁻; OPO(OR²¹)₂; -OR²²; -C₆H₅, in which one or more hydrogens may be replaced by substituents; and

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linear and branched aliphatic C_3 - C_6 -aminothiols with at least one primary or secondary amino function and one thiol function, preferably the aminothiol used has exactly one primary or secondary amino function and exactly one thiol function, and further substituents may be present from the group: -OH; -CN;

-C(O)OH; -C(O)OR¹⁸; -C(O)NR¹⁹R²⁰; -OSO₃; -SO₃; -OPO₃²; OPO(OR²¹)₂; -OR²²; -C₆H₅, in which one or more hydrogens may be replaced by substituents; and

$$\bigcup_{0} = 0$$

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linear and branched aliphatic C₃-C₆-amino acids with at least one primary or secondary amino function and a carboxyl function, preferably exactly one primary or secondary amino function;

linear and branched aliphatic C_3 - C_6 -dithiols with at least two thiol functions, preferably exactly two thiol functions, and further substituents may be present from the group: -OH; -CN; $NR^{16}R^{17}$; -C(O)OH; -C(O)OR¹⁸; -C(O)NR¹⁹R²⁰; -OSO₃⁻; -SO₃⁻; -OPO₃²⁻; OPO(OR²¹)₂; -OR²²; -C₆H₅, in which one or more hydrogens may be replaced by substituents; and

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- A process as claimed in any of claims 7 to 10, wherein the polyol used is glycerol, 15 11. tartaric acid, diethyl tartrate, trimethylolpropane, fructose, cyclohexanediol, sucrose, tetrahydroxybutane, the alkanolamine used is trimethylolmethylamine, diethanolamine, propanolamine, dipropanolamine, amino sugars, the thiol used is mercaptoethanol, mercaptolactic acid, mercaptoglycolic acid, thiosalicylic acid, mercaptosuccinic acid, 3-mercapto-1,2-propanediol, cysteine, N-acetylcysteine, 3-20 mercaptopropionic acid, penicillamine, the hydroxycarboxylic acid used is lactic acid, citric acid, glycolic acid, tartaric acid, glyceric acid, maleic acid, salicylic acid, the diamine used is propylenediamine, diethylenetriamine, triethylenetetramine, N-aminopropylethylenediamine $(N_3$ -amine), N,N'-25 bis(aminopropyl)ethylenediamine (N₄ amine), hydroxyethylethylenediamine, the aminothiol used is cysteine, tyrosine, mercaptopropylamine, the amino acid used is aminodiacetic acid HN(CH₂CO₂H)₂, ethylenediaminetriacetic acid, alanine, arginine, asparagine, aspartic acid, cysteine, glutamine, glutamic acid, glycine, histidine, isoleucine, leucine, lysine, methionine, phenylalanine, proline, serine, threonine, tryptophan, tyrosine, valine, or N-phosphonomethylglycine. 30
 - 12. The use of a substance as claimed in any of claims 1 to 6 or a mixture thereof as cosurfactant.

- 13. A household detergent, household cleaner, body-cleansing composition or bodycare composition comprising at least one compound as claimed in any of claims 1 to 6.
- 14. A detergent as claimed in claim 13 in solid, liquid, gel or paste form, preferably in the form of a powder, compact, granulate, tablet or gel.

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- 15. A detergent as claimed in claim 13 or 14 comprising 0.1 to 40% by weight, in particular 0.5 to 30% by weight, very particularly 1 to 20% by weight, based on the total amount of the formulation, of at least one compound as claimed in any of claims 1 to 6.
- 16. A household cleaner as claimed in claim 13 in liquid, gel, or solid form, preferably in the form of a liquid, gel, powder or compact.
- 17. A household cleaner as claimed in claim 16 in the form of a hand dishwashing detergent, machine dishwashing detergent, metal degreaser, glass cleaner, floor cleaner, all-purpose cleaner, high-pressure cleaner, alkaline cleaner, acidic cleaner, spray degreaser, dairy cleaner, upholstery cleaner, plastics cleaner and bath cleaner.
- 20 18. A household cleaner as claimed in claim 16 or 17 comprising 0.01 to 40% by weight, preferably 0.1 to 25% by weight, based on the overall formulation, of at least one substance as claimed in any of claims 1 to 5.
- 19. A body-cleansing composition or bodycare composition in the form of a shampoo, shower gel or bath gel, shower lotion or bath lotion, a lipstick, a cosmetic formulation with care and/or conditioning properties or a styling product, in particular a liquid soap, a care cream, a hair foam, hair gel, hairspray or aftertreatment composition, a hair tonic, a lotion, treatment rinse, treatment pack, splitend fluid, hair repair composition, "hot oil treatments", hair-setting composition, hair colorant or permanent waving composition.